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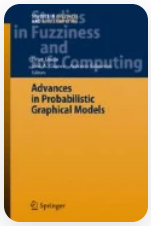

Advances in Probabilistic Graphical Models

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Abstract

When using the influence diagrams framework for solving a decision problem with several different quantitative utilities, the traditional approach has been to convert the utilities into one common currency. This conversion is carried out using a tacit transformation, under the assumption that the converted problem is equivalent to the original one. In this paper we present an extension of the influence diagram framework. The extension allows for these decision problems to be modelled in their original form. We present an algorithm that, given a linear conversion function between the currencies of the original utilities, discovers a characterisation of all other such functions, which induce the same optimal strategy. As this

characterisation can potentially be very complex, we give methods to present it in an approximate way.

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